



DACOWITS RFI #5

Gender Integration

December 2022

Program Executive Office Soldier



RFI 5 Gender Integration

In 2018, the Committee recommended that, *“The Secretary of Defense should require all Military Services, including the Reserve/Guard, provide servicewomen with gender appropriate and properly fitting personal protective equipment (PPE) and gear for both training and operational use.”* Though the Military Services have made strides in improving PPE and combat gear for women, the Committee remains interested in the development, procurement, and timelines servicewomen must navigate to obtain gender appropriate and properly fitting PPE, combat gear, and uniforms.

The Committee requests a briefing from the Army, Navy, Marine Corps, Air Force, Space Force, National Guard, and Coast Guard on the following:

- a. What process is currently being applied to evaluate the effectiveness of PPE and combat gear for women?
 - i. Provide date of last anthropometric study used to develop PPE and combat gear for women.
 - ii. Provide any additional technology/studies utilized to improve PPE and combat gear for women.
- b. What is the current timeline and process to procure equipment via existing supply channels?
- c. What is the current timeline and process to procure alternative equipment (e.g., unique fit) not obtainable via existing supply channels?
- d. Provide an update on modifications to or the development of gender specific PPE, combat gear, and uniforms since June 2018, to include:
 - i. Updates/modifications to maternity uniforms.
 - ii. Updates/modifications to grooming standards.
 - iii. Information related to studies conducted to improve female flight suits.
- e. Provide an onsite visual display that depicts new gender specific PPE and combat gear developed for women.
[Visual displays provided through images found in this presentation.]
- f. In NDAA FY17, the Army was directed to develop combat boots for female Soldiers. Did the Army ever conduct this study? If so, please provide findings from the study. If not, please provide an update on the status of this study.



Evaluating the Effectiveness of PPE

5a: What process is currently being applied to evaluate the effectiveness of PPE and combat gear for women?

- The Army uses several methods to assess the effectiveness of PPE, including Human System Integration (HSI), Human Factor Evaluations (HFE), 3D body scanning, penetration assessments, and post-fielding surveys and working groups
- The primary area of evaluation that considers Soldier sex is HSI, which is done during Soldier Touch Points, developmental tests, and operational test events where Soldiers perform representative tasks and data is collected on performance, comfort, fatigue, and Soldier acceptance. As a part of Soldier Protection System (SPS) Developmental and Operational Testing, at least a dozen HSIs were conducted across multiple installations, always with both sexes well-represented
- All-female HFEs are also used to more specifically address the needs of female Soldiers, e.g., evaluation of SPS Torso Extremity Protection equipment in 1QFY20
- 3D scanning technology is used to better assess female fit
- Ballistic protection is evaluated through a deliberate test methodology that ensures adequate protection of all wearers, independent of PPE size or Soldier sex
- Online surveys and large group forums such as the Inter Service Body Armor Working Group and the Women in Army Special Operation Forces Initiative also provide essential feedback post-fielding
- The goal is to ensure that all statures and sexes of Soldiers, from the 5th percentile to the 95th percentile, can safely and effectively execute required mission tasks and operations while wearing the appropriate size of PPE



Evaluating the Effectiveness of PPE

5a: What process is currently being applied to evaluate the effectiveness of PPE and combat gear for women?

I. Provide date of last anthropometric study used to develop PPE and combat gear for women.

- Executed a complete anthropometric study in 2012 with over 12,000 Soldiers, 4,000 of whom were female
- In 2018, conducted a surveillance study and verified the 2012 data was still valid for males but there were not enough females to verify the female data
- The next surveillance study is planned for FY26, and it will oversample females
- Post-collection research is ongoing on an array of topics—
 - Understanding the fit and performance issues of females with body armor
 - Creating test and evaluation frameworks
 - Developing preliminary alternative shapes for plate design
 - Creating alternative plate sizing for improved fit
 - Assessing the effect of different postures on body armor fit
 - Developing a family of anthropometrical female digital head models



Evaluating the Effectiveness of PPE

5a: What process is currently being applied to evaluate the effectiveness of PPE and combat gear for women?

II. Provide any additional technology/studies utilized to improve PPE and combat gear for women.

- Female Torso Shape Classification System
- Characterization and assessment of bra design features and sizing
- Mobility impacts from equipment (male/female comparison)
 - Body armor
 - Soldier load
 - Cold weather equipment
- Headborne weight's impact on dismounted performance and comfort (male/female comparison)
- Fit Mapping of the Improved Hot Weather Combat Uniform for Females (IHWCU-F)
- Investigation and limited user evaluation of female undergarments with urine collection/ diversion devices



Procuring Equipment

5b/c: What is the current timeline and process to procure equipment via existing supply channels? Is this different for alternative equipment (i.e. unique fit)?

Several contracting vehicles and processes are available for the procurement of uniforms and equipment that are used singularly or in combination to ensure sufficient quantities for Soldiers.

- Defense Logistics Agency (DLA) Troop Support Funded Requisitions- Immediate fulfillment for existing items, up to 18 months for new items
- DLA Tailored Logistics System- < 60 days for most items, utilizes commercial part numbers
- General Services Agency- < 90 days for most items, utilizes National Stock Numbers.
- Small Business Set-aside- Up to 12 months for competed items (solicitation-award)
- Federal Acquisition Regulation (FAR) Based Contracting- Up to 18 months depending on complexity, dollar value, and number of respondents
- Ability One Set Aside- 90-120 days for Administrative Adds (replacement items) and up to 180 days for Full Adds (new item)

This infrastructure and timeframe generally accommodates the needs of alternative equipment as well.



Optimized Fit Equipment

5d: Provide an update on modifications to or the development of gender specific PPE, combat gear, and uniforms since June 2018.

The Army is currently fielding its newest generation of Personal Protective Equipment, the Soldier Protection System (SPS). SPS was developed to provide Soldiers with a modular, scalable, mission-tailorable suite of protective equipment at a lighter weight than previously available, while also ensuring female and small stature Soldiers are equipped for combat and training in properly fitted and sized protective equipment. SPS consists of:



Integrated Head Protection System (IHPS)



Modular Scalable Vest (MSV)



Vital Torso Protection (VTP) Plates



Ballistic Combat Shirt (BCS)



Blast Pelvic Protector (BPP)

Female / Small Stature Specific Adjustments

Adjustments were informed by an all-female Human Factors Evaluation in 2019

IHPS

- Retention straps changed to better fit female face shapes
- Female specific H-Back rear retention design implemented to fit common female hair styles (e.g. hair buns)

MSV

- Eight (8) total sizes, including three (3) new sizes to accommodate female and small statured Soldiers (X-Small-Short, Small-Short, and Small-Long)
- Added two (2) sizes to side plate carriers, 6x6 and 6x8

VTP

Torso Plates

- Eight (8) total sizes, including three (3) new sizes (X-Small-Short, Small-Short, and Small-Long)

Side Plates

- Available in three (3) sizes, accommodating all Soldiers

Female BCS

- Six (6) sizes for female Soldiers: XS, SM, MED, LG, XL, XXL
- Shorter arm lengths
- Hair bun cut-out in the back of the collar
- Flared sweep at hips and to prevent the shirt from riding up

BPP

- Four (4) core sizes (SM, MD, LG, XL) currently available
- Two (2) alternative sizes (XS and XXL) to accommodate all Soldiers



Optimized Fit Equipment, Army Combat Uniform-Female (ACU-F)

5d: Provide an update on modifications to or the development of gender specific uniforms



- Current Army uniform, Sustained by Defense Logistics Agency – Troop Support (DLA-TS)
- Coat available in 16 sizes and trousers available in 16 sizes
- Revised patterns to provide a better fitting and more professional appearance
- Narrowed shoulders, repositioned rank, adjusted sleeve length, repositioned pencil and sleeve pockets, adjusted waist and sweep ratio, jacket longer length, adjusted waist to hip ratio, repositioned knee patches, shortened fly, repositioned trouser cargo and lower leg pockets
- Issued to new female Soldiers at Initial Entry Training through the Clothing Bag and is available for sale through Army Military Clothing & Sales (AMCS)



Optimized Fit Equipment, Improved Hot Weather Combat Uniform- Female (IHWCU-F)

5d: Provide an update on modifications to or the development of gender specific uniforms



- The IHWCU-F is Sustained by Defense Logistics Agency – Troop Support (DLA-TS)
- 16 specific female sizes
- Female-centric patterns provide a better fitting and more professional appearing uniform
- Narrowed shoulders, repositioned rank, adjusted sleeve length, repositioned pencil and sleeve pockets, adjusted waist and sweep ratio, jacket longer length, adjusted waist to hip ratio, repositioned knee patches, shortened fly, repositioned trouser cargo and lower leg pockets
- Authorized for issue to new female Soldiers at Initial Entry Training (IET) through the clothing bag and will be available for sale through Army Military Clothing & Sales (AMCS) 2QFY23



Optimized Fit Equipment, Flame Resistant Army Combat Uniform – Female (FR-ACU-F)

5d: Provide an update on modifications to or the development of gender specific uniforms



- Sustained by Defense Logistics Agency – Troop Support (DLA-TS)
- 16 specific female sizes
- Identical sizing and cut as the ACU-F, but in a flame-resistant material
- Narrowed shoulders, repositioned rank, adjusted sleeve length, repositioned pencil and sleeve pockets, adjusted waist and sweep ratio, jacket longer length, adjusted waist to hip ratio, repositioned knee patches, shortened fly, repositioned trouser cargo and lower leg pockets
- Not available for purchase; issued as OCIE through the Rapid Fielding Initiative (RFI) and Army Direct Ordering (ADO) for deploying Soldiers



Optimized Fit Equipment, Garrison Culinary Uniform - Female

5d: Provide an update on modifications to or the development of gender specific uniforms



- Sustained by Defense Logistics Agency – Troop Support (DLA-TS)
- The smock is available in 11 sizes
- The female garrison culinary uniform is the daily work uniform for all female enlisted Soldiers in CMF 92 who hold the culinary specialist MOS, when prescribed by CTA 50–900 and by the commander
- Visually all coat and trousers / slacks designs are identical between unisex and female versions. Female coat designed with wider chest, wider sweep, and female trousers designed with shorter rise with a narrower waist and thigh
- The garrison culinary and Senior Culinary Management NCO uniforms are managed by the Central Issue Facility (CIF). Soldiers retain these uniforms for as long as they are assigned to culinary duties



Optimized Fit Equipment, Army Green Service Uniform (AGSU) – Female

5d: Provide an update on modifications to or the development of gender specific uniforms



- Sustained by the Defense Logistics Agency – Troop Support (DLA-TS)
- Mandatory for all Soldiers to have the AGSU by October 1, 2027
- Tailored sizing for jackets and skirts
- The AGSU will be the everyday service uniform for all Soldiers and the current Army Service Uniform (ASU), commonly referred to as Dress Blues, will serve for occasions requiring more formal dress
- The female AGSU was reviewed and approved through an All-Women's Army Uniform Board in Oct 2017
- Issued to new female Soldiers at Initial Entry Training through the Clothing Bag and is available for sale through Army Military Clothing & Sales (AMCS)



Optimized Fit Equipment, Army Service Uniform (ASU) – Female

5d: Provide an update on modifications to or the development of gender specific uniforms



- Sustained by the Defense Logistics Agency – Troop Support (DLA-TS)
- Tailored sizing for jackets and skirts
- Tailored female jacket worn with neck tab rather than tie. Authorized for wear with skirts
- Available for sale through Army Military Clothing & Sales (AMCS)



Optimized Fit Equipment, Mess Uniform Female

5d: Provide an update on modifications to or the development of gender specific uniforms



- The blue evening mess uniform is the most formal uniform worn by Army personnel and corresponds to the civilian "white tie and tails"
- Optional uniform: the female blue mess uniform is worn for black-tie functions and corresponds to the civilian tuxedo
- Tailored sizing for jackets and skirts
- The female uniform has a tailored jacket with a neck tab and skirt (knee-length and full-length) while the male uniform jacket is worn with a bowtie and pants
- Available for sale through Army Military Clothing & Sales (AMCS)



Optimized Fit Equipment, Army Physical Fitness Uniform (APFU) – Female

5d: Provide an update on modifications to or the development of gender specific uniforms



- Sustained by the Defense Logistics Agency – Troop Support (DLA-TS)
- There are six female jacket sizes in Short, Regular, and Long lengths and six female pants sizes in Short, Regular, and Long lengths
- Added female APFU jacket and pant sizes; sleeves were shortened; elastic sleeves added; cuff tab created; removed sleeve interlining; waist and sweep adjusted; drawcord length adjusted; center back rise (buttocks area) added; waistband taken in; elastic leg length adjusted
- Issued to new female Soldiers at Initial Entry Training through the clothing bag and is available for sale through AMCS



Optimized Fit Equipment, Physical Fitness Bra

5d: Provide an update on modifications to or the development of gender specific uniforms



Champion
Recruit
Black



Under
Armour
Mid
Keyhole



Under
Armour
Mid
Crossback



Under Armour
Eclipse High Zip
Front

- The 152nd Army Uniform Board (AUB) authorized the increase of the one-time stipend to female Soldiers from \$196 to \$385 to purchase seven brassieres in their initial clothing allowance effective FY22 (~\$55 per brassiere)
- 151st AUB also authorized the analysis of Commercial Off the Shelf (COTS) sports bras that could meet the need of new recruits during Initial Entry Training



Optimized Fit Equipment, Improved Maternity Work Uniform (IMWU)

5d: Provide an update on modifications to or the development of gender specific uniforms

I. Updates/modifications to maternity uniforms.



- Sustained by the Defense Logistics Agency – Troop Support (DLA-TS)
- All pregnant Soldiers are authorized two sets of the IMWUs. The IMWU is an organizational clothing and Individual equipment (OCIE) item and will be requested in accordance with the procedures contained in DA Pam 710–2–1 from the local CIF
- Uniform is available in seven sizes
- Designed “to mirror the new ACU design to the fullest extent possible” and to improve upon the previous design which “lacked sufficient pockets”
- Available through Army Military Clothing & Sales and the Central Issue Facility (CIF)



Optimized Fit Equipment, Maternity and Nursing T-shirt

5d: Provide an update on modifications to or the development of gender specific uniforms

I. Updates/modifications to maternity uniforms.



- Commercial versions approved for wear in 2018 as an optional item and approved for development of a Government design version in 2020 (152nd AUB)
- Government designed version will be available as a Maternity Organizational Clothing & Individual Equipment (OCIE) issue item with the maternity uniform issue and for purchase by officers through Army Military Clothing & Sales (AMCS) in October 2023



Optimized Fit Equipment, Army Physical Fitness Uniform Maternity (APFU-M)

5d: Provide an update on modifications to or the development of gender specific uniforms

I. Updates/modifications to maternity uniforms.



- Design approved in 2020. PEO Soldier conducted Form, Fit, and Function evaluations in FY21. PEO Soldier expects to have a Product Description in 2QFY23
- The APFU-M will provide pregnant Soldiers a PT uniform that fits properly and provides the necessary support for lower back pain and abdominal size during pregnancy and in the 180 days past the end of their pregnancy
- Incorporates belly band in both shorts and pants to take some pressure off the back and redistribute along waist. Jacket and shirt designed to support expanding bust and waistline
- Will be available as a supplemental issue item through Central Issue Facility (for enlisted soldiers) and for sale through Army Military Clothing & Sales (AMCS)



Optimized Fit Equipment, Army Service Uniform - Maternity

5d: Provide an update on modifications to or the development of gender specific uniforms

I. Updates/modifications to maternity uniforms.



- Sustained by the Defense Logistics Agency – Troop Support (DLA-TS)
- The maternity service uniform is authorized for year-round wear by pregnant Soldiers as a service or dress uniform, when prescribed for wear by CTA 50–900, AR 700–84, and the commander
- Tunic is available in five sizes, and trousers are available in seven sizes
- Tunic rather than service jacket to accommodate expanding waistline
- Supplemental issue item for enlisted Soldiers using a voucher at the Army Military Clothing & Sales (AMCS)
- Also available for sale through AMCS



Optimized Fit Equipment

5d: Provide an update on modifications to or the development of gender specific PPE, combat gear, and uniforms since June 2018, to include:

II. Updates/modifications to grooming standards.

The Army announced updated grooming standard modifications on April 30, 2021 with ALARACT 040-2021. This eliminated the minimum hair length for female Soldiers and authorized the wear of ponytails in a combat uniform. Army Regulation 670-1 is currently being revised to implement the new policies.



Optimized Fit Equipment, Army Aircrew Combat Uniform – Female (A2CU-F)

5d: Provide an update on modifications to or the development of gender specific uniforms.

III. Information related to studies conducted to improve female flight suits.



- A2CU-F is Sustained by Defense Logistics Agency – Troop Support (DLA-TS). Currently available for female Soldiers; issued through the Central Issue Facilities (CIF) and Rapid Fielding Initiative
- The sizing system for the female A2CU has 12-sizes of coats and 14-sizes of trousers. The A2CU-F is a two-piece flight suit that offers the Soldier protection from flash fires
- The A2CU-F is designed to provide fit improvements for the female Soldier and the same level of flame resistant (FR) protection as the A2CU. Modified crotch, back fullness reduced, waist tunnel reshaped, waist design-partial elastic, reshaped hips/waist, shoulders narrowed, reduced leg width, sleeve length shortened/sleeve fullness reduced



Optimized Fit Equipment

5f: In NDAA FY17, the Army was directed to develop combat boots for female Soldiers. Did the Army ever conduct this study? If so, please provide findings from the study. If not, please provide an update on the status of this study.

- September 2017, the Army provided Army Combat Footwear Survey response to Congressional Defense Committees. The Army surveyed 14,000 Service members online and presented to Congress the following results and path forward to address:
 - Survey results do not conclusively support making gender specific changes to Army sizing, as male and female Soldiers reported comparable satisfaction (moderate) with their combat boots
 - Significant conclusions cannot be drawn between Services due to limited female survey responses, but results indicated comparable level of satisfaction with Army issued combat boots compared to those issued by other services
 - The Army will conduct additional tests on female combat footwear to determine if the needs of all Soldiers are being met and to investigate methods of improving overall Soldier satisfaction to include a study utilizing the latest Army database of anthropometric measurements to identify any significant differences between male and female foot size and shape to compare to current footwear sizing dimensions
- The Army conducted the Female Footwear Fit and Sizing Effort and found unisex and female boots had similar percentage best fits. Female soft toe boots had significantly higher ratings post activity in areas of:
 - Overall fit
 - Boot fit – width
 - Acceptability of boot fit